AMENDMENTS TO CLAIMS

1. (currently amended) A process for measuring stress on a conducting surface having an insulating coating applied to said surface and a conductive coating applied to said insulating coating, the process comprising measuring a change in ~~the~~ resistivity of said conductive coating, wherein said conductive coating comprises stabilized diamond-like metal-carbon atomic scale composites having a concentration of metal that exhibits conductivity percolation with an applied stress.

2. (canceled)

3. (new) A stress sensor system comprising at least one stress sensor, wherein the sensor comprises:

a first electrode;

at least one other electrode; and

a sensing film disposed in relation to the first and the at least one other electrode for determining a change in resistivity of the sensing film, wherein the sensing film comprises a diamond-like metal-carbon atomic scale material having a concentration of metal for the material to exhibit conductivity percolation with an applied stress.

4. (new) The stress sensor system of claim 3, wherein the diamond-like metal-carbon material is a stabilized diamond-like metal-carbon composite.

5. (new) The stress sensor system of claim 4, wherein the diamond-like metal-carbon material is stabilized with silica.

6. (new) The stress sensor system of claim 3, wherein the diamond-like metal-carbon material comprises a metal selected from the group consisting of Cr, Ni, Fe, Co, Mo, W, Nb, Ta, Ti, V, Mn, Re, and Hf.

7. (new) The stress sensor system of claim 3, wherein the concentration of the metal of the diamond-like metal-carbon is up to about 50%.

8. (new) The stress sensor system of claim 3, wherein the concentration of the metal of the diamond-like metal-carbon is about 25%.

9. (new) The stress sensor system of claim 3, wherein the diamond-like metal-carbon is free of phases greater than about 30 nanometers.

10. (new) The stress sensor system of claim 3, wherein the diamond-like metal-carbon material comprises a pre-percolation metal composition for sensing compressive stress.

11. (new) The stress sensor system of claim 3, wherein the diamond-like metal-carbon material comprises a post-percolation metal composition for sensing tensile stress.

12. (new) The stress sensor system of claim 3, wherein the diamond-like metal-carbon material comprises a middle-percolation metal composition for sensing at least one of compressive and tensile stress.

13. (new) The stress sensor system of claim 3, wherein the sensing film is adhered to a substrate to be monitored for stress.

14. (new) The stress sensor system of claim 13, wherein the substrate is electrically conductive and wherein a dielectric film is adhered to the substrate and the sensing film is adhered to the dielectric film.

15. (new) The stress sensor system of claim 13, wherein the sensing film is adhered to the substrate by depositing the sensing film on the substrate using a deposition process.

16 (new) The stress sensor system of claim 15, comprising a plurality of stress sensors, wherein the sensing film of each of the plurality of stress sensors is cut from a sensing layer deposited onto the substrate.

17. (new) The stress sensor system of claim 15, wherein the first and the at least one other electrode are formed by depositing a conducting layer over the sensing film using a mask with contact areas over the sensing film exposed.

18. (new) The stress sensor system of claim 15, wherein the stress sensor comprises a dielectric stabilized diamond-like carbon layer deposited over the stress sensor.

19. (new) A stress sensor system comprising at least one stress sensor, wherein the sensor comprises:

a first electrode;

at least one other electrode; and

a sensing film disposed in relation to the first and the at least one other electrode for determining a change in resistivity of the sensing film, wherein the sensing film comprises a silica stabilized diamond-like metal-carbon atomic scale material having a concentration of

metal for the material to exhibit conductivity percolation with an applied stress, and wherein the sensing film is deposited onto to a substrate to be monitored for stress.

19. (new) A stress sensor system comprising at least one stress sensor, wherein the sensor comprises:

a first electrode;

at least one other electrode; and

a sensing film disposed in relation to the first and the at least one other electrode for determining a change in resistivity of the sensing film, wherein the sensing film comprises a diamond-like metal-carbon atomic scale material having one of:

a pre-percolation metal composition for sensing compressive stress;

a post-percolation metal composition for sensing tensile stress; and

a middle-percolation metal composition for sensing at least one of compressive and tensile stress.

21. (new) The stress sensor system of claim 20, comprising a plurality of stress sensors, wherein the sensing film of each of the plurality of stress sensors is cut from a sensing layer deposited onto a substrate to be monitored for stress.

22. (new) The stress sensor system of claim 21, wherein a substrate is electrically conductive and a dielectric layer is deposited over the substrate and the sensing layer is deposited over dielectric layer.